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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/726,667	12/04/2003	Jin-Woo Park	1568.1076	5849
49455	7590	07/27/2005	EXAMINER	
STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			THOMAS, TONIAE M	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/726,667

Applicant(s)

PARK ET AL.

Examiner

Toniae M. Thomas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 May 2005.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.  
4a) Of the above claim(s) 17-25 and 27 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-5, 7-13, 15, 16 and 26 is/are rejected.  
7) ☒ Claim(s) 6 and 14 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 13 May 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

1. This action is an official response to the amendment filed on 13 May 2005. Currently, claims 1-27 are currently pending. Claims 17-25 and 27 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention.

***Drawings***

2. The drawings received on 13 May 2005 are approved.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 9-13, 16, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki (US 2001/0040645 A1).

The Yamazaki patent (Yamazaki '645) discloses a method of manufacturing an organic electroluminescent display device (figs. 4A-9B and accompanying text). The method comprises: preparing an auxiliary substrate 500(600), which has a flat side and is non-flexible (fig. 4A and par. 76, lines 2-5); forming a first protective layer 501b on the auxiliary substrate, which is

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insoluble in a liquid etchant (fig. 4A and par. 78, lines 3-5); forming an organic electroluminescent unit 554, 556, 557 on the first protective layer (fig. 7C, par. 112, lines 1-6, and par. 114, lines 1-3); bonding a flexible main substrate 602 onto the organic electroluminescent unit (fig. 8B and par. 127, lines 1-7); and etching the auxiliary substrate to remove the auxiliary substrate (fig. 8C and par. 130). The auxiliary substrate has a thickness after the etching step that allows flexibility.<sup>1</sup>

The auxiliary substrate 500(600) is made of glass (par. 77 and lines 5-9), and the flexible main substrate 602 is made of a synthetic resin material having flexibility (par. 127, lines 1-7).<sup>2</sup>

A second protective layer 559 for planarizing the organic electroluminescent unit is formed on the organic electroluminescent unit before bonding the flexible main substrate (fig. 7C and par. 121, lines 1-2).

Forming the organic electroluminescent unit comprises: forming a thin-film transistor layer on the first protective layer (fig. 6A and par. 76, lines 2-5); forming a first electrode layer 554 on the first protective layer to be electrically connected to the thin-film transistor layer (fig. 7B and par. 112, lines 1-6); forming an insulation layer 555 such that a predetermined portion of the first electrode layer is exposed (fig. 7C and par. 113, lines 1-5); forming an organic layer 556 on the first electrode layer (fig. 7C; par. 114, lines 1-3; and par. 117,

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<sup>1</sup> This limitation is not an active process step. Furthermore, it does not preclude the complete removal of the auxiliary substrate.

<sup>2</sup> The flexible main substrate is made of plastic. Plastic is a synthetic resin.

lines 1-4); and forming a second electrode layer 557 on the insulation layer exposing the organic layer (fig. 7C and par. 114, lines 1-3).

A protector 608 is formed on the first protection layer 501b after the auxiliary substrate is etched (fig. 9A and par. 136).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 8, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki ('645) in view of Yamazaki et al. (US 5,821,138).

Yamazaki ('645) lacks anticipation of etching the auxiliary substrate using a liquid etchant, wherein the etchant is one selected from the group consisting of hydrofluoric acid, hydrochloric acid, and a mixture thereof. On the contrary, the Yamazaki et al. patent (Yamazaki '138) discloses a method of manufacturing a semiconductor device (figs. 1A-4 and accompanying text), wherein the method comprises etching an auxiliary substrate 101 made of glass using a liquid etchant (fig. 3A and col. 9, lines 25-27). The liquid etchant used is a buffered hydrofluoric acid (col. 9, lines 25-27).

Both Yamazaki ('645) and Yamazaki ('138) are from the same field of endeavor, methods for manufacturing semiconductor devices in ultra large scale integrated circuits. Thus, the purpose for which Yamazaki ('138) is relied upon would have been recognized in the pertinent reference, Yamazaki ('645), by one of ordinary skill in the art at the time the invention was made.

The glass auxiliary substrate 500(600) in Yamazaki ('645) is etched by exposing the auxiliary substrate to a gas etchant (Yamazaki ('645) - par. 130). In other words, the substrate in Yamazaki ('645) is etched using a dry etching process. On the other hand, the auxiliary substrate 101 in Yamazaki ('138) is etched using a wet etching process. Both the wet etching process of Yamazaki ('138) and the dry etching process of Yamazaki ('645) are used to selectively etch an auxiliary substrate made of glass. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify Yamazaki ('645) by etching the auxiliary substrate using a wet etching process that is selective to glass, as taught by Yamazaki ('138), because the wet etching process is an alternate process suitable for the selective removal of a glass substrate.

#### ***Response to Arguments***

5. Applicant's arguments filed on 13 May 2005 have been fully considered but they are not persuasive.

First, the examiner would like to point out that the protective layer in Yamazaki '645 is the silicon oxide layer 501b, and not the separating layer 601 as argued by Applicant.

Secondly, independent claims 1, 3, and 10 do not require the auxiliary substrate to be removed by a wet etchant. More particularly, the independent claims do not require removal of the auxiliary substrate by the liquid etchant to which the first protective layer is insoluble. The claims merely require the protective layer to be insoluble in any liquid etchant. This is a characteristic of the material chosen to be the protective layer. The selectivity of liquid etchants is well known in the art.

Thirdly, since the independent claims, claims 1, 3, and 10, do not require the auxiliary substrate to be removed with a liquid etchant, the claims are still deemed unpatentable over the prior art patent to Yamazaki '645 in which a dry etchant is used to remove the auxiliary substrate.

Moreover, the claims as presently written do not preclude the removal of the protective layer.

***Allowable Subject Matter***

6. Claims 6 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**Conclusion**

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toniae M. Thomas whose telephone number is (571) 272-1846. The examiner can normally be reached on Monday-Thursday from 8:30 a.m. to 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on (571) 272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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TMT  
25 July 2005

A handwritten signature in black ink, appearing to read 'Mary Wilczewski', with a stylized flourish at the end.

**Mary Wilczewski**  
**Primary Examiner**